



# The Need for Smarter Definitions and Practical, Timely Empirical Research on Information Disorder

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# THE NEED FOR SMARTER DEFINITIONS AND PRACTICAL, TIMELY EMPIRICAL RESEARCH ON INFORMATION DISORDER

**Claire Wardle**

*This article is based on a keynote delivered at the Future of Journalism conference at Cardiff University in September 2017. The speech was inspired by personal experiences and frustrations as a practitioner-academic leading a project designed to develop and test solutions to the challenges posed by information disorder. Arguing for closer relationships between journalism academics, news organizations and technology companies, this article outlines terminology and frameworks for making sense of information disorder, so those conversations can be based on shared definitions.*

**KEYWORDS** disinformation; information disorder; journalism; misinformation

## Introduction

Societies are struggling globally with information disorder, and researchers should play a central role in defining the boundaries of the “problem,” researching the scale and scope using interdisciplinary mixed-methods approaches, and rigorously evaluating initiatives designed to tackle the problem to ensure they are effective.

First, we need to agree on our language and terminology, which currently are too broad, too sweeping, atheoretical and ahistorical. We’re talking over and past each other, as we try to view this polluted information ecosystem from our different perspectives. To tackle this issue, we must take definitions seriously – as academics usually do.

Without clear, and shared, definitions, conversations among academics, technology companies, politicians, educators, and civil society are meaningless, and even potentially dangerous. The obsession with the phrase “fake news” isn’t abating, though it’s a woefully inadequate phrase. For one, much of the content being debated isn’t actually fake, but instead used out of context or manipulated.<sup>1</sup> Further, the ecosystem of polluted information extends far beyond content that mimics “news.”

Worse, the phrase has been appropriated by politicians and their supporters around the world to describe news organizations they don’t like. Instead of describing

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the information ecosystem, “fake news” has become a tool that the powerful use both to clamp down on and restrict free speech and to undermine and circumvent the free press.

More than discarding “fake news” as a phrase, researchers need a shared understanding of the other terms regularly used to describe the initiatives fighting it. Fact-checking, source-checking, verification, debunking – though all these words connote authenticating information, they’re often conflated. Their boundaries must be understood.

In this article, based on my work with Hossein Derakhshan (Wardle and Derakhshan 2017), I outline a shared language for describing information disorder. I suggest concrete ideas for how academia could become not only central to this conversation, but also necessary for building the research framework that will help us understand the scale and impact of information disorder.

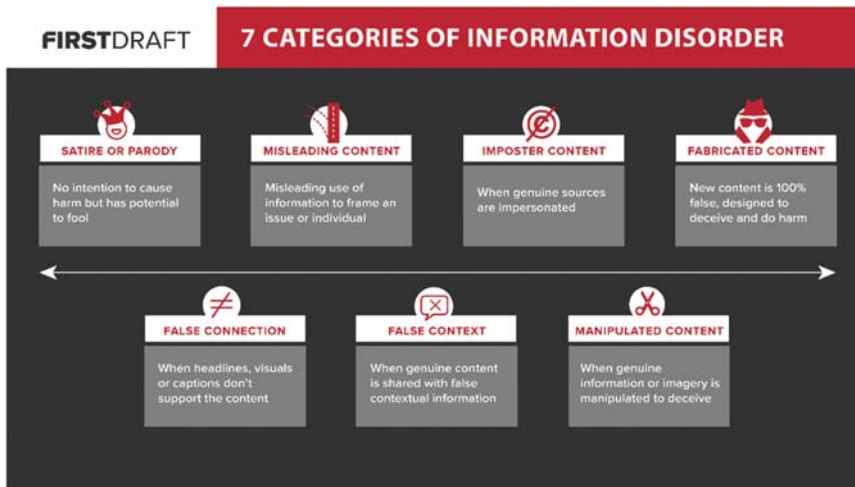
### **Information Disorder**

The phrase “fake news” is simple, but the ecosystem it attempts to capture is complex. One of the term’s many problems is that it focuses the conversation on text rather than visuals, on websites rather than native posts on social networks or closed messaging apps. Below are some, but certainly not all, of the formats that should be considered in this conversation:

- Websites created to deliberately spread disinformation;
- Inaccurate posts on public social media, forums and message boards (Facebook, Twitter, Reddit, 4Chan, Gab etc.);
- Inaccurate information shared on closed messaging apps such as WhatsApp, Facebook, Messenger, Telegram or Discord;
- Visual posts on social media sites (Instagram, YouTube, Pinterest) and closed messaging apps (including inaccurate photographs, videos, memes, and data visualizations that have been manipulated or fabricated);
- Inaccurate information published via so-called “dark posts” on social networks that micro-target updates to certain users; (These posts are described as dark as the post is not visible on the organization’s public profile)
- Text, image and video results on search platforms (e.g. Google, Bing, YouTube)
- Inaccurate comments or content published on consumer review sites (e.g. Amazon, TripAdvisor)
- Manufactured signatures on online petitions (e.g. Change.org)
- Offline events created online, for example, Facebook “Events” pages designed to encourage passionate supporters from either side of a controversial topic to take their protests to the streets (O’Sullivan, 2018)

### **The 7 Categories of Information Disorder**

Clearly delineating what counts as information disorder is difficult. Legislators struggle with content that might be legal in other contexts—incitement to violence or hate speech—but nevertheless harms individuals, organizations, or even the democratic process. The definition of information disorder is not black and white; it’s fluid.

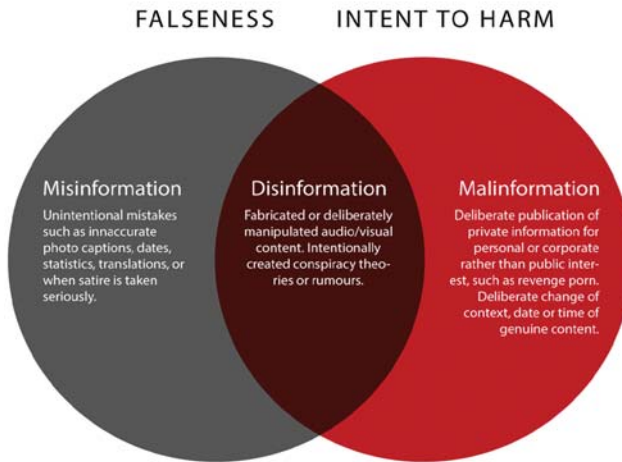
**FIGURE 1**

The 7 categories of information disorder

In this diagram, I highlight seven types of information disorder, illustrating this fluid spectrum. Satire, the least problematic form of information disorder, sits on one end of the spectrum, while fabricated content, specifically content created to spread false information, sits on the other (Figure 1).

1. **Satire and Parody:** Including satire here is perhaps surprising. However, people often don't realize that satire is actually satire, especially when they are reading on a social feed. In fact, in our Crosscheck project monitoring the French presidential election, we found that people disseminate disinformation masquerading as satire, in order to avoid fact-checks (Smyrnaio, Chauvet, and Marty 2017).
2. **False Connection:** A false connection is when headlines, visuals or captions don't support an article's content. The most common example is clickbait headlines, which are becoming more popular.
3. **Misleading Content:** Misleading content appears when information is used to inaccurately frame an issue or an individual. For example, someone may misguide their reader by cropping a photo or by choosing a quote or statistic to remove relevant context. As scholarship of visuals (Susan 1977) has shown, the way we understand imagery is fundamentally different from how we understand text. Our brains process images far faster than they do text (Potter 2014). As a result, our critical reasoning skills are less likely to engage with what we're seeing. Therefore, visuals are particularly powerful vehicles for disseminating misleading information.
4. **False Context:** Here, accurate content is circulated out of its original context, misleading the reader. Content exhibiting "false context" is one of the many reasons that the term "fake news" is so unhelpful.
5. **Imposter Content:** Journalists often see their bylines alongside articles they did not write, and organizations' logos are used in video and images they did not create. For example, during the Parkland School shooting in Florida

## TYPES OF INFORMATION DISORDER



**FIGURE 2**  
The three types of information disorder

in February 2018, someone created screenshots of faked tweets and photo-shopped a story by a journalist at the Miami Herald (Funke 2018) twisting the original meaning of their reporting.

6. **Manipulated Content:** Manipulated content is when genuine content is manipulated to deceive. This often involves two genuine images being spliced together (Huseman and Glickhouse 2016).
7. **Fabricated Content:** Fabricated content can be textual or visual. For example, the fabricated “news site” WTOE5 News published an article suggesting that the Pope had endorsed Donald Trump. Or, consider the visual example in which a graphic targeted at minority communities on social networks suggested that people could vote for Hillary Clinton via SMS (Hawkins 2016).

### Three Types of Information Disorder

These seven categories can be categorized into three camps, based on truthfulness and intention to harm. Content that is false but not intended to harm is called misinformation. This can include satire, clickbait, or misleading quotes and images. Content that is false and intended to harm is considered disinformation and includes malicious lies, fabricated content, and manipulation campaigns. Finally, truthful information that is intended to harm is considered to be malinformation (Figure 2).<sup>2</sup>

### The Three Elements of Information Disorder

The ecosystem of information disorder includes different actors, very different messaging formats, and wildly different audience interpretations. Thus, we need to separately examine the “elements” of information disorder: the agents, messages, and

|                    |                                                                                                                                                     |                                                                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agent</b>       | Actor Type:<br>Level of Organisation:<br>Type of Motivation:<br>Level of Automation:<br>Intended Audience:<br>Intent to Harm:<br>Intent to Mislead: | Official / Unofficial<br>None / Loose / Tight / Networked<br>Financial / Political / Social / Psychological<br>Human / Cyborg / Bot<br>Members / Social Groups / Entire Societies<br>Yes / No<br>Yes / No |
| <b>Message</b>     | Duration:<br>Accuracy:<br>Legality:<br>Imposter Type:<br>Message Target:                                                                            | Long term / Short-term / Event-based<br>Misleading/ Manipulated / Fabricated<br>Legal / Illegal<br>No / Brand / Individual<br>Individual / Organisation / Social Group / Entire Society                   |
| <b>Interpreter</b> | Message reading:<br>Action taken:                                                                                                                   | Hegemonic / Oppositional / Negotiated<br>Ignored / Shared in support / Shared in opposition                                                                                                               |

**FIGURE 3**

The three elements of information disorder

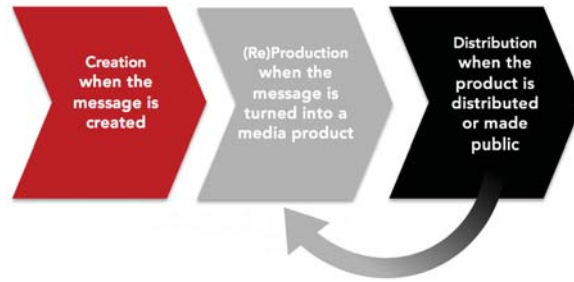
interpreters. In this matrix we pose questions that need to be asked of each element. As we explain, the “agent” who creates a fabricated message might be different to the agent who produces that message—who might also be different from the “agent” who distributes the message. We need to thoroughly understand not only who these agents are, but also what motivates them. Similarly, we must understand the types of messages distributed by agents, so that we can properly estimate their scale and properly address them. Finally, we need to more deeply understand how these messages are interpreted, what actions are being taken by those who see them (e.g. re-sharing to their networks with new comments), and how various audiences “read” these messages when they’re coming from trusted family members, friends or peers (Figure 3).

First, we need to examine the “Agents” – those who have the idea for the message (that might be an operative in the Russian government, an individual who sees the opportunity for financial gain, or a Trump supporter who wants to publicly connect with other like-minded people to push a misleading narrative).

There are four motivations for creating misleading or inaccurate information: (i) financial, (ii) political (either geo-political or campaign politics), (iii) social (to connect with others like you) or (iv) psychological (to cause trouble or harm for harm’s sake).

The types of actors vary widely. Actors can act on behalf of a state, or as part of a loose network of passionate supporters of a country, party, or cause. The target of the disinformation can be an individual, a cause, a party, a religion, or a country. Actors can program bots, or they can post as humans or cyborgs (humans who post so regularly they take on the characteristics of bots). Actors can intend to mislead and cause harm or they may not.

Types of messages vary widely as well. They may be legal or illegal; they can be individual messages or part of a longer-term manipulation campaign; they can be slightly misleading with a kernel of truth or widely exaggerated and wholly inaccurate.

**FIGURE 4**

The three elements of information disorder

The obsession with the terms “fake news” has also meant that we have become disproportionately focused on text over images; the debate has focused on fabricated news “sites,” and visual content, like images, visualizations, graphics, and videos, have been rarely considered, even when they are misleading, manipulated or fabricated. Technology companies have aimed their solutions at fabricated articles, mostly because text is easier to computationally analyze than visuals. However, visuals are often more persuasive than text, making them a more powerful vehicle for information disorder (Birdsell and Groarke 1996). In addition, in the past few months, we’ve seen that audio and video can be manipulated to falsify reality (Adler 2017).

Finally, messages are interpreted in a whole host of ways. Their interpretation depends on the source of the message, who created it, who shared the message, and how the message interacts with a reader’s existing beliefs. Researchers need to study the impact of digital m/disinformation over social networks.

However, important work has certainly been done. Stuart Hall’s (1980) seminal work, “Encoding/Decoding,” remains relevant. We ought to be asking the questions he poses: Are users accepting the messages as designed? Are they challenging certain parts of a message or dismissing it entirely? If we examine how messages are “reshared,” we gain insight into how people make sense of particular messages. More analysis of this kind is needed to understand how messages are shared, online and off, and how messages are interpreted, particularly when the messages are mediated by a recipient’s trusted peers.

Communication research, such as the two-step flow model first discussed by Paul Lazarsfeld (Lazarsfeld, Berelson, and Gaudet 1944), reminds us that understanding a message’s impact means focusing on more than just the number of people who clicked on any given link. People interact with information in a complex set of ways – their beliefs and attitudes are shaped by opinion leaders, the mass media, and, in the era of social media, often by just an individual journalist, a friend, or even a commenter online. Researchers must figure out how to measure information disorder – this will perhaps be our most significant challenge.

### Three Phases of Information Disorder

Finally, we need to think about the different phases of information disorder: creation, production, distribution, and, frequently, reproduction. Across these different

**FIGURE 5**

Deconstructing a fabricated news story

phases, there are often different agents, and the message itself often evolves. Those that interpret the original message become agents themselves when they reshare with their own communities (Figure 4).

To examine how the phases of creation, production and distribution help us understand information disorder, let's use the article "Pope Francis Shocks World, Endorses Donald Trump for President, Releases Statement" published on the self-proclaimed fantasy news site WTOE 5 in July 2016. For an in-depth analysis of this article and the network of sites connected to it, we would recommend reading "The True Story Behind the Biggest Fake News Hit of The Election" (Silverman 2016b).

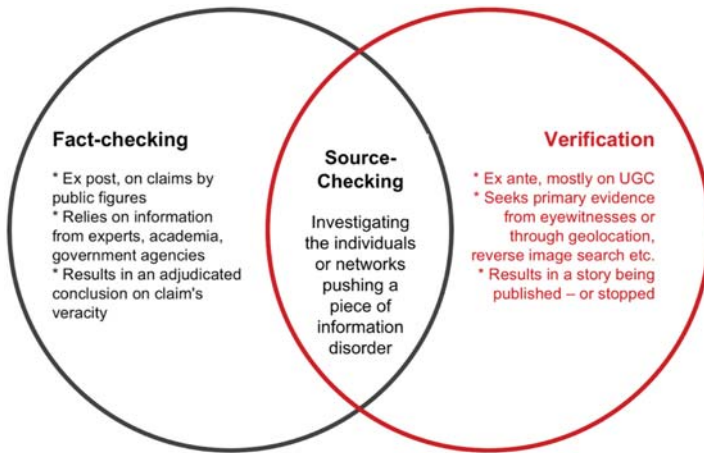
If we think about the three phases in this example, we can see how different agents increased the impact of this content (Figure 5).

Researchers should explore how the mainstream media act as agents, amplifying – intentionally or not – fabricated or misleading content. Fact-checking has always been fundamental to quality journalism, but hoaxers and those attempting to disseminate dis-information have never been this sophisticated. With newsrooms increasingly relying on the social web for story ideas and content, forensic verification skills and the ability to identify networks of fabricated news websites and bots is more important than ever before.

### *Terminology Around Fact-Checking and Verification*

Just as we need a shared language to describe information disorder, we need a shared language to discuss interventions.

To start with, we should differentiate between fact-checking and verification. Fact-checking organizations focus on statements and claims made by official sources,



**FIGURE 6**  
Explaining the overlapping techniques of fact-checking, verification and source-checking

such as politicians, think tanks, and news reports, after they've been published. Independent fact-checking organizations emerged in the early 1990s in response to concerns about false claims in political advertisements on television (Graves 2016). The numbers of fact-checkers globally have more than tripled over the past 4 years, increasing from 44 in 2014 (when Duke Reporters Lab started tracking fact-checking organizations) to 149 today (Stencel and Griffin 2018).

In contrast to fact-checkers, verification specialists focus on visual content circulated by *unofficial sources*. They do these checks before they are included in professional publications. Verification as a discipline emerged in the mid-2000s in response to newsrooms receiving more and more content from citizen journalists and eyewitnesses who had captured footage on camcorders and digital cameras. A new journalistic skill emerged – the need to verify these images, using metadata such as EXIF data, to independently geo-locate using clues inside the picture, and to investigate the digital footprint of the person submitting the content. Specialist units like the BBC's UGC Hub (Wardle, Claire, and Andy Williams 2008; Wardle, Dubberley, and Brown 2014) led the way. The skills spread to other newsrooms as the Syrian conflict escalated and the only content available were the videos uploaded to YouTube by activists. Specialist organizations like the social media news agency Storyful emerged, as did citizen Open Source Investigative organizations like Bellingcat.

In the age of information disorder, these previously separate communities and skill sets have begun to overlap. In March 2017, the Director of the International Fact-Checking Network, Alexios Mantzarlis created a Venn Diagram (Mantzarlis 2017) to explain the relationship between the two communities. In the middle of the diagram, he used the term “debunking” to describe the work both communities now do to discredit fabricated news sites and viral hoaxes.

I think the diagram is useful for describing the landscape, but I have replaced the term debunking with the term “source-checking.” I believe this term more fully captures the increasingly important techniques of investigating the individuals or networks pushing or amplifying information disorder (Figure 6).

However, as different stakeholders are seeking “solutions,” scholars must recognize the different challenges that require different skillsets. Facebook’s Third Party Fact-Checking Project (Mosseri 2016) uses organizations that are signatories to the International Fact-Checking Network’s Code of Principles (Poynter 2016). As Facebook opens up that initiative to images and videos, not just text websites, those working on the project will require new skills.

Understanding these distinctions and using these terms correctly is fundamental – but one of the most interesting challenges facing us is how to bring these two communities and their techniques together. An audience doesn’t distinguish between a politician’s claim that refugees are on the rise and a manipulated video that supposedly shows refugees entering a country illegally. Audiences just want to know what is true.

### **How Can and Should Journalism Studies Respond?**

Academia’s skills and rigour are desperately needed to solve the issue of information disorder.

Though there are key scholars working in this space, mainly from the disciplines of psychology and political communication, who are publishing articles, most of the “research” that is receiving the most attention is not peer-reviewed research at all. Research Institutes like Data and Society, the Reuters Institute for the Study of Journalism and the Tow Center for Digital Journalism are publishing research that is receiving a great deal of public attention from journalists, policy-makers and the technology companies. Unquestionably however the “research” that is receiving the most attention is reporting carried out by journalists like Craig Silverman at BuzzFeed (Wardle 2018). His article from November 2016 entitled “This Analysis Shows How Viral Fake Election News Stories Outperformed Real News On Facebook” (Silverman 2016a) is one of the most widely cited pieces of research about the scale of misinformation around the US Presidential election, and it’s a nonpeer-reviewed news article.

The state of research must change. We need rigorous, empirical, interdisciplinary, mixed methodology research that is timely but peer-reviewed. We need a Disinformation Journal, one that brings together the best research from across disciplines. However, academics seeking tenure will likely not want to publish in a new journal. Thus, in addition to an informal peer-review network of academics publishing on sites like Medium and SSRN, we need incentives for researchers to publish on the topic, in journals and informally.

Engineers from technology companies, interviewed by Nic Dias (2018), know that their work would be improved if they could read more research on how their technologies are used and understood. However, they’re not likely to read the relevant research in its current state: it’s scattered across different journals, is aimed at researchers in specific disciplines, and often uses opaque language. Engineers admitted that they did not seek out research, nor did they act upon it, because it so often lacked clear recommendations beyond calls for more research. As one platform representative explained: “That work is actually 95% useless to industry. Because we know that it’s hard. We know that it’s complicated. We know that it’s ambiguous. But we’ve got to do something. So, reading an analysis of why it’s hard doesn’t move us forward.” (Dias 2018, 84).

Academics working as unofficial R&D Lab for large technology companies is arguably an issue, for the same reasons that are often cited about social scientists and humanities scholars undertaking research with direct societal impact. However, empirical research is needed nonetheless, research that could inform the daily decisions of those working on social technologies with global influence.

One of my main frustrations about journalism studies research was that we (and I count myself in that “we”) often relied too heavily on content studies, because we believe that is too difficult to access “producers,” and that audience research is so expensive and time consuming. In fact, many journalists and technologists are desperate to work with researchers on difficult questions. I really hope we will see more partnerships between academics and practitioners globally in solving this complex and pressing issue.

### *What has First Draft Done*

First Draft – the organization I lead, based at the Harvard Kennedy School – works on pop-up experimental projects, testing initiatives in the field. We then research what worked – and what didn’t – in order to build training resources for journalists, journalism students, and anyone else who wants to learn the skills necessary to navigate the information ecosystem.

In November of last year, First Draft worked with ProPublica on Electionland, an ambitious project that recruited 660 journalism students at 13 schools, 400 local journalists across the US, and a 100-strong pop-up newsroom in New York City to monitor reports of voter suppression on social media and via SMS on election day (Electionland 2017). In May, First Draft also led a collaborative journalism project called CrossCheck, with 37 partners in France to monitor disinformation circulating during the 10 weeks leading up to the French presidential election. In addition to qualitative research with the journalists involved and CrossCheck audiences (Smyrniaios, Chauvet, and Marty 2017), the iconography and headlines used on the CrossCheck website are currently being tested by the cognitive psychologist Lisa Fazio. In June we partnered with Full Fact in the UK to monitor problematic information circulating ahead of the British election (2), and in September did the same with Correctiv! in Germany for its Federal election (Sweeney 2017).

In 2018 we will be working on projects connected to the US Mid-terms and the Brazilian Presidential election. Academics will have the opportunity to partner with these types of experimental projects to help design them, to continuously research the project as its conducted, and to evaluate the projects once they’re completed.

### **Conclusions**

In 2018 governments will pass legislation on Information Disorder. On January 1, Germany passed the Network Enforcement Act law. In March 2018, the EU Commission’s High Level Expert Group on Fake News published its report (EU Commission 2018), and the UK’s Digital Media Culture and Sport Select Committee will publish its report mid-2018. Emmanuel Macron is gearing up to pass a “fake news” law. Legislators in Italy and Brazil are threatening to criminalize the creation and

dissemination of disinformation. Journalists and academics have been so busy talking to one another that we never connected with those who have the power to pass these types of laws. So, these laws will be based on crude if not non-existent definitions.

The recent school shooting in Florida led to a number of particularly worrying trends – the photoshopping of Miami Herald articles and tweets, sophisticated campaigns to fool journalists into thinking that the shooter was connected to white supremacists (Johnson 2018), widespread claims on Youtube that the students fighting for gun control are crisis actors (Timberg and Harwell 2018), and conspiracies impacting trending lists on the platforms (McClain 2018). Despite the actions and interventions taken to fight information disorder in the past 18 months, the situation has not improved. Arguably, it's getting worse. However, perhaps worst of all, without baseline data, it is impossible to assess.

And while the discussion is often focused on the US, political disinformation, and the Facebook newsfeed, information disorder is a global threat, not just an American one; it often relates to health and science, not just politics; and it's spread on closed messaging apps, not just Facebook. And as technology evolves, and we see developments in the automated creation of videos and sound files based on artificial intelligence, individual hoaxes are less terrifying than the thought that people may lose trust in all forms of information.

Unless we start researching these trends, we will not be able to prevent them. Instead, we'll be left where we are now – researching them after they've happened.

## DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

## NOTES

1. One example of this a photo of a Muslim woman walking past a victim during the Westminster bridge attack was amplified by a Russian bot. The photograph was genuine but the amplification techniques were part of a coordinated campaign to shape public opinion about the event (see Dixon 2017).
2. Three articles describing the workflows and key learnings from the project can be found here: <https://firstdraftnews.org/project/uk-election/>

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